

## ABSTRACT OF THE DISCLOSURE

An apparatus and method for shielding non-target tissues and organs during thermotherapy, brachytherapy or other treatment of a diseased target tissue. The apparatus includes a catheter shaft having input and output lumens and at least one inflatable balloon. A plurality of input lumens within the catheter shaft allows the passage of liquid or gas through an input port and into the interior of the balloon thereby inflating the balloon. The gas or liquid can then be cycled through the inflated balloon through an output port and output lumen and out of the catheter shaft. Temperature sensors or other sensors may be attached to the balloon or catheter to monitor temperature or other conditions at the treatment site. The catheter is positioned between the target tissue or organ and sensitive non-target tissues in proximity to the target tissue and inflated causing a physical separation of tissues as well as a physical shield.